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INTERNATIONAL APPLICATION NO.

PCT/JP00/00416

INTERNATIONAL FILING DATE

27 JANUARY 2000 ✓

PRIORITY DATE CLAIMED

NONE

TITLE OF INVENTION

METHOD FOR PRODUCING LIGHT-COLORED LIQUID SEASONING

APPLICANT(S) FOR DO/EO/US

Kaoru INDOH, et al.

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below.
4. ☐ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
 - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
 - b. ☒ has been communicated by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
 - a. ☒ is attached hereto.
 - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
 - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ have been communicated by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☒ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).
11. ☐ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☒ A copy of the International Search Report (PCT/ISA/210).

Items 13 to 20 below concern document(s) or information included:

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☐ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☐ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
20. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
21. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
22. ☐ Certificate of Mailing by Express Mail
23. ☒ Other items or information:

Request for Consideration of Documents in International Search Report
PCT/IB/308

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Description

Method for Producing Light-Colored Liquid Seasoning

Technical Field

The present invention relates to a method for producing a seasoning liquid, and more particularly to a method for producing a seasoning liquid which assumes a light color, undergoes a darkening process slowly, and has an excellent aroma with rich flavor and umami taste.

Background Art

Production of an *usukuchi* soy sauce, which is a light-colored soy sauce, generally employs wheat serving as a source of starch, and soybeans or similar beans serving as a source of protein. However, conventional *usukuchi* soy sauces provides more saltiness than umami, because the amount of starch material to be mixed with protein material is slightly greater than that of the protein material, or salt concentration is raised so as to suppress coloration.

In addition, the darkening rate of conventional *usukuchi* soy sauces is very high, making the sauces unstable. Moreover, in order to attain a light color, fermentating period is shortened, or even further, a method for bleaching the produced soy sauce is employed. Thus, conventional *usukuchi* soy sauces have disadvantages in that the savory flavor is not satisfactory.

A method for producing a soy sauce having a light color and darkening slowly is disclosed in, for example, Japanese Patent Application Publication (*kokoku*) No. 57-48188, in which 10-30% (by weight) gluten is used together with at least one member selected from among corn, sorghum, or common millet serving as a source of starch, to thereby produce light-colored soy sauce having an excellent savory flavor and undergoing a darkening process slowly.

However, the aforementioned method has the following disadvantages: a) since starch materials other than wheat are employed, the aroma unique to wheat is not produced, b) corn, sorghum, and common millet have low glutamic acid content, and therefore the glutamic acid content of the resultant soy sauce also becomes low, resulting in an unsatisfactory umami taste, c) a satisfactory light color is not attained.

In view of the foregoing, the present inventors have undertaken various research efforts in an attempt to solve the above-described problems, and an object of the present invention is to provide a seasoning liquid which assumes a light color of No. 35 or higher in accordance with JAS color code (hereinafter, in the present description, the term "light color" refers to a color of No. 35 in accordance with JAS color code or lighter colors), which darkens slowly, and which has an excellent aroma with rich flavor and umami taste, and have found that, when at least gluten is employed as an essential material for *koji*-making and fermentation, and the salt concentration of water employed for fermentation is

controlled to 7-24%, satisfactory results can be attained, thus leading to completion of the present invention.

Disclosure of the Invention

Accordingly, the present invention provides a method for producing a light-colored seasoning liquid, characterized by comprising *koji*-making by the employment of a raw material mixture containing soybeans or a similar material in an amount of 0-40% and, in an amount of 100-60%, raw material consisting of, on a dry weight basis, 25-100% gluten and 75-0% wheat, and mixing the thus-obtained *koji* product and 7-24% salt water for fermentation.

Best Mode for Carrying Out the Invention

Gluten to be used in the present invention includes wheat gluten and corn gluten, with wheat gluten being particularly preferred. Either wet gluten or dry gluten obtained by drying wet gluten may be used, and dry gluten is particularly preferred. Examples of dry gluten include vital gluten powder and dry wheat gluten.

In the present invention, the wheat to be used as the starch material may be wheat grains or wheat flour.

The gluten or the mixture of gluten and wheat must be treated with heat so as to sufficiently denature the protein contained therein. Examples of preferred methods for heat treatment include a method in which steam is applied directly to gluten or a mixture of gluten and wheat, without addition

of water, so as to control the water content thereof to fall within 12-18%, followed by formation of pellets by use of a pellet mill, and subsequently treating the resultant pellets in a high-pressure steam-cooking vessel at a gauge pressure of at least 1.0 kg/cm² for two minutes or more, and a method in which gluten or a mixture of gluten is extruded at a temperature equal to or higher than 110°C by use of an extruder.

The thus-heat-treated gluten is completely deactivated, and exhibits no stickiness. Also, protein is denatured to a satisfactory degree. Therefore, when the thus-obtained gluten is appropriately ground, water is added thereto in such an amount that attains a water content of 35-50%, and used in *koji*-making, no operational problems arises. Rather, the swelling property of gluten provides an excellent bulkiness of material, which is quite beneficial to ventilated *koji*-making. In addition, when such gluten is mixed with heat-treated soybeans or a similar material, similar excellent *koji*-making property is exhibited. Moreover, the resultant *koji* product exhibits higher protease activity and glutaminase activity than in the case in which a greater amount of gluten is used.

In the present invention, soybeans or a similar material to be used as the protein material include, but are not limited to, defatted soybeans, whole soybeans, and ground soybeans. These are soaked in water, or water is added thereto; and then steam cooked, or alternatively, together

with the aforementioned gluten and wheat flour, shaped through extrusion by use of an extruder at a temperature equal to or greater than 110°C, to thereby sufficiently denature the proteins contained therein.

According to the present invention, very important factors for attaining the object of the present invention are to control the proportions of gluten and wheat such that, on the basis of dry weight, gluten accounts for 25-100% and wheat accounts for 75-0% with respect to the total amount of the two materials employed, and to control the proportion of soybeans or a similar material such that soybeans or a similar material accounts for 0-40% of the entirety of the raw materials employed.

Regarding the proportions of gluten and wheat, gluten may be used alone without wheat being employed. However, in the case in which wheat is employed, the proportion of wheat must account for 75% or less and gluten must be incorporated in an amount of at least 25%. In this connection, when gluten is incorporated in an amount smaller than the above-mentioned amount, although the resultant seasoning liquid has a light color, the seasoning is prone to lack umami, and thus the object of the present invention cannot be attained.

When soybeans or a similar material is incorporated, the amount thereof must be 40% or less. If the amount of soybeans or a similar material is in excess of 40%, the resultant seasoning has an intense umami taste; however, not only is reddish tint originating from soybeans or similar

material intensified, but also the seasoning has a higher rate of darkening with unsatisfactory savory flavor, and thus the object of the present invention cannot be attained.

In the present invention, it is also necessary that a *koji* product obtained from *koji*-making by use of the aforementioned raw material mixture be charged with 7-24% salt water for maturing through fermentation. When the salt concentration is less than 7%, putrefaction occurs due to a growth of unwanted microorganisms, whereas when the salt concentration is more than 24%, umami taste of the resultant seasoning liquid is unsatisfactory, and thus the object of the present invention cannot be attained. The fermentation maturing is allowed to proceed, under routine monitoring and control of *moromi* mash, for 2-5 months at 10-30°C, preferably for 2-3 months at 10°C; or alternatively, for one month at 10°C and subsequently for a further 1-2 months at 20°C. Thereafter the resultant *moromi* mash is subjected to filtration or pressing, to thereby yield a seasoning liquid such as soy sauce. The thus-yielded soy sauce or any other type of seasoning liquid has a light color, a slow darkening rate, a very rich umami taste, and an excellent aroma. In the present invention, when the volume of the salt water to be charged is 1.35-1.65 times the weight of the raw material mixture, even more remarkable results can be obtained. In the case in which the volume is less than 1.35 times the weight of the resultant mixture, although a very rich umami taste can be attained, the color is darkened, which is not

preferable.

Examples

The present invention will next be described in detail by way of Example.

Example 1

A mixture of vital gluten powder (840 g) and wheat flour (560 g) was moistened through direct application of steam so as to attain a water content of 15%, and formed into pellets having a diameter of 4 mm by use of a pellet mill. Subsequently, the pellets were steam cooked for four minutes with saturated steam at a gauge pressure of 1.5 kg/cm², and then mashed to thereby yield a mashed product.

In the meantime, water (690 ml) was added to defatted soybeans (600 g) and the resultant mixture was steam-cooked for 30 minutes with saturated steam at a gauge pressure of 1.0 kg/cm², to thereby prepare steam-cooked soybeans.

To the above-obtained mashed product, water (420 ml) and then the steam-cooked soybeans were added, and the water content of the mixture was adjusted to 46%. Subsequently, seed *koji* was inoculated to the mixture and the resultant mixture was subjected to *koji*-making for 40 hours at 22-35°C, to thereby yield a *koji* product.

The thus-obtained *koji* product and salt water (3000 ml) having a salt concentration of 7.5% were charged in a tank for fermentation for three months at 10°C. The resultant mixture was pressed, to thereby yield a seasoning liquid.

The thus-obtained seasoning liquid had a color of JAS color code #43, which represents a very light color. The total nitrogen content of the seasoning liquid was as high as 3.02%, and moreover, the glutamic acid content was 4.54%, which is remarkably high, providing a very rich umami taste.

Test Example 1

A *koji* product obtained in a manner similar to that described in Example 1 and salt water having a salt concentration listed in Table 1 (3,000 ml) were charged in a tank for fermentation for one month at 10°C, and subsequently for a further two months at 20°C. The resultant mixture was pressed to thereby yield a seasoning liquid. Each of the thus-obtained seasoning liquid samples was tested with respect to the following criteria: JAS color code, total nitrogen (TN) content, glutamic acid (Glu) content, and amount of glutamic acid per unit amount of nitrogen (Glu/TN). The results are shown in Table 1.

Table 1

No.	Salt (%)	JAS color code	TN (%)	Glu (%)	Glu/TN (mg/g)
1	7	42	3.14	4.24	1350
2	15	40	2.99	4.38	1465
3	22	37	2.93	4.49	1532
4	24	35	2.95	4.07	1380
5	26	31	2.95	3.57	1210

Test Example 2

A *koji* product obtained in a manner similar to that

described in Example 1 and salt water having a salt concentration of 15% (3,000 ml) were charged in a tank for fermentation under temperature conditions shown in Table 2. The resultant mixture was pressed, to thereby yield a seasoning liquid. Each of the thus-obtained seasoning liquid samples was tested with respect to the following criteria: JAS color code, total nitrogen (TN) content, glutamic acid (Glu) content, and the amount of glutamic acid per unit amount of nitrogen. The results are shown in Table 2.

Table 2

No.	fermentation temp. (°C)		JAS color code	TN (%)	Glu (%)	Glu/TN (mg/g)
	0-1 month	1-3 months				
6	10	10	41	3.00	4.84	1613
7	10	20	40	2.99	4.38	1465
8	20	20	40	3.04	3.74	1230

Test Example 3

A *koji* product obtained in a manner similar to that described in Example 1 and salt water having a salt concentration of 22% in an amount shown in Table 3 were charged in a tank for fermentation for one month at 10°C, and subsequently for a further two months at 20°C. The resultant mixture was pressed to thereby yield a seasoning liquid. Each of the thus-obtained seasoning liquid samples was tested with respect to the following criteria: JAS color code, total nitrogen (TN) content, glutamic acid (Glu) content, and the

amount of glutamic acid per unit amount of nitrogen. The results are shown in Table 3.

Table 3

No.	Salt water (times)	JAS color code	TN (%)	Glu (%)	Glu/TN (mg/g)
9	1.0	23	4.11	5.72	1392
10	1.2	29	3.81	5.21	1367
11	1.35	35	3.74	4.65	1243
12	1.65	37	3.49	4.04	1158
13	1.8	41	3.30	3.78	1145

Example 2

The procedure of Example 1 was repeated, to thereby yield a steam-cooked and mashed product of a mixture of vital gluten powder and wheat flour.

The water content of the mixture was adjusted to 46% through addition of water to the mashed product, followed by addition of seed *koji*, and subsequently the mixture was subjected to *koji*-making for 40 hours at a temperature of 22-35°C, to thereby yield a *koji* product. The thus-obtained *koji* product and salt water (7.5%, 3,000 ml) were mixed, and allowed to ferment for three months at 10°C. The resultant mixture was pressed, to thereby yield a seasoning liquid.

The thus-obtained seasoning liquid assumed a very light color, a color of JAS color code #49. The total nitrogen content of the seasoning liquid was as high as 3.64%, and moreover, the glutamic acid content was 5.89%, which is

remarkably high providing a very rich umami taste.

Test Example 4

A *koji* product obtained in a manner similar to that as described in Example 2 and salt water (3,000 ml) having a salt concentration shown in Table 4 was prepared for fermentation under temperature conditions listed in Table 4. The resultant mixture was pressed to thereby yield a seasoning liquid. Each of the thus-obtained seasoning liquid samples was tested with respect to the following criteria: JAS color code, total nitrogen (TN) content, glutamic acid (Glu) content, and the amount of glutamic acid per unit amount of nitrogen. The results are shown in Table 4.

Table 4

No.	Salt (%)	Fermentation temp. (°C)			JAS color code	TN (%)	Glu (%)	Glu/TN (mg/g)
		0-1 month	1-2 months	2-3 months				
14	7	10	10	10	49	3.64	5.89	1618
15	15	10	10	10	48	3.24	5.80	1790
16	15	10	20	20	45	3.49	5.16	1479
17	15	10	20	25	43	3.39	5.10	1504
18	15	20	20	20	44	3.59	4.77	1329
19	22	10	10	10	47	2.92	5.32	1822
20	22	10	20	20	42	3.15	4.94	1568
21	22	10	20	25	40	3.40	4.97	1462
22	22	20	20	20	41	3.28	4.47	1363

Industrial Applicability

The present invention enables manufacture of a seasoning liquid product which assumes a very light color (JAS color code #35 or a lighter color), darkens slowly, has a stable color and gloss, provides a remarkable umami taste, and is endowed with excellent aroma.

CLAIMS

1. A method for preparing a light-colored seasoning liquid, characterized by comprising *koji*-making by the employment of a raw material mixture containing soybeans or a similar material in an amount of 0-40% and, in an amount of 100-60%, raw material consisting of, on a dry weight basis, 25-100% gluten and 75-0% wheat, and subjecting a resultant *koji* product and 7-24% salt water to fermentation.

2. The method for preparing a light-colored seasoning liquid according to claim 1, wherein the salt water is employed in an amount 1.35-1.65 times the weight of the raw material mixture.

3. The method for preparing a light-colored seasoning liquid according to claim 1 or 2, wherein the fermentation is carried out for 2-3 months at 10°C; or for one month at 10°C and subsequently for a further 1-2 months at 20°C.

Declaration and Power of Attorney For Patent Application

特許出願宣言書及び委任状

Japanese Language Declaration

日本語宣言書

下記の氏名の発明者として、私は以下の通り宣言します。

私の住所、私書箱、国籍は下記の私の氏名の後に記載された通りです。

下記の名称の発明に関して請求範囲に記載され、特許出願している発明内容について、私が最初かつ唯一の発明者（下記の氏名が一つの場合）もしくは最初かつ共同発明者（下記の名称が複数の場合）であると信じています。

「淡色調味液の製造法」

上記発明の明細書は、

本書に添付されています。

2000年1月27日に提出され、米国出願番号または特許協定条約国際出願番号を PCT/JP00/00416 とし、

（該当する場合）に訂正されました。

私は、特許請求範囲を含む上記訂正後の明細書を検討し、内容を理解していることをここに表明します。

私は、連邦規則法典第37編第1条56項に定義されるとおり、特許資格の有無について重要な情報を開示する義務があることを認めます。

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled.

METHOD FOR PRODUCING LIGHT-COLORED

LIQUID SEASONING

the specification of which

☐ is attached hereto.

☒ was filed on January 27, 2000 /

as ~~United States Application Number~~

PCT International Application Number

PCT/JP00/00416 and was amended on

(if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

Japanese Language Declaration
(日本語宣言書)

私は、米国法典第35編119条 (a) - (d) 項又は365条 (b) 項に基づき下記の、米国以外の国の少なくとも一カ国を指定している特許協力条約365 (a) 項に基づく国際出願、又は外国での特許出願もしくは発明者証の出願についての外国優先権をここに主張するとともに、優先権を主張している、本出願の前に出願された特許または発明者証の外国出願を以下に、枠内をマークすることで、示しています。

Prior Foreign Application(s)
外国での先行出願

(Number) (番号)	(Country) (国名)
(Number) (番号)	(Country) (国名)

私は、第35編米国法典119条 (e) 項に基づいて下記の米国特許出願規定に記載された権利をここに主張いたします。

(Application No.) (出願番号)	(Filing Date) (出願日)
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(Application No.) (出願番号)	(Filing Date) (出願日)
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(Application No.) (出願番号)	(Filing Date) (出願日)
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私は、私自信の知識に基づいて本宣言書で私が行なう表明が真実であり、かつ私の入手した情報と私の信じることに基づく表明が全て真実であると信じていること、さらに故意になされた虚偽の表明及びそれと同等の行為は米国法典第18編第1001条に基づき、罰金または拘禁、もしくはその両方により処罰されること、そしてそのような故意による虚偽の声明を行えば、出願した、又は既に許可された特許の有効性が失われることを認識し、よってここに上記のごとく宣誓を致します。

I hereby claim foreign priority under Title 35, United States Code, Section 119 (a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Priority Claimed
優先権主張

(Day/Month/Year Filed) (出願年月日)	<input type="checkbox"/> Yes はい	<input type="checkbox"/> No いいえ
(Day/Month/Year Filed) (出願年月日)	<input type="checkbox"/> Yes はい	<input type="checkbox"/> No いいえ

I hereby claim the benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below.

(Application No.) (出願番号)	(Filing Date) (出願日)
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I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code Section 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of application.

(Status: Patented, Pending, Abandoned) (現況: 特許許可済、係属中、放棄済)

(Status: Patented, Pending, Abandoned) (現況: 特許許可済、係属中、放棄済)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Japanese Language Declaration

(日本語宣言書)

委任状：私は下記の発明者として、本出願に関する一切の手続きを米特許商標局に対して遂行する弁理士または代理人として、下記の者を指名いたします。

(弁護士、または代理人の指名及び登録番号を明記のこと)

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: (list name and registration number)

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単独発明者または第一の共同発明者の氏名 印藤 馨	Full name of sole or first joint inventor Kaoru INDOH
発明者の署名 Kaoru Indoh	Inventor's signature Date June 8, 2001
住所 300-2611 日本国茨城県つくば市大久保13 日清製粉株式会社つくば研究所内	Residence c/o Nisshin Flour Milling Co., Ltd. Tsukuba Laboratory, 13, Okubo, Tsukuba-shi, Ibaraki 300-2611 JAPAN JPX
国籍 日本国	Citizenship Japanese ✓
郵便の宛先 住所に同じ	Post Office Address same as above
第二の共同発明者の氏名 飯山 鈴恵	Full name of second joint inventor, if any Suzue Iiyama
第二の共同発明者の署名 Suzue Iiyama	Second joint Inventor's signature Date June 8, 2001
住所 010-0003 日本国秋田県秋田市東通6-13-8-B201	Residence 13-8-B201 Higashidori 6-chome, Akita-shi, Akita 010-0003 JAPAN JPX
国籍 日本国	Citizenship Japanese ✓
郵便の宛先 住所に同じ	Post Office Address same as above

(第三以降の共同発明者についても同様に記載し、署名すること)

(Supply similar information and signature for third and subsequent joint inventors.)

Japanese Language Declaration
(日本語宣誓書)

3-00

第三の共同発明者の氏名 宮崎 英二	Full name of third joint inventor, if any <u>Eiji MIYAZAKI</u>
第三の共同発明者の署名 Eiji Miyazaki June 8, 2001	Third joint inventor's signature Date
住所 356-8511 日本国埼玉県入間郡大井町鶴ヶ岡5-3-1 日清製粉株式会社QEセンター内	Residence c/o Nisshin Flour Milling Co., Ltd. QE Center, 3-1, Tsurugaoka 5-chome, Ohi-machi, <u>Iruma-gun</u> , Saitama 356-8511 Japan <u>JPX</u>
国籍 日本国	Citizenship Japanese <input checked="" type="checkbox"/>
郵便の宛先 住所に同じ	Post Office Address same as above

4-00

第四の共同発明者の氏名 岡田 憲三	Full name of fourth joint inventor, if any <u>Kenzo OKADA</u>
第四の共同発明者の署名 Kenzo Okada June 8, 2001	Fourth joint inventor's signature Date
住所 300-0312 日本国茨城県稲敷郡阿見町南平台2-16-16	Residence 16-16, Nanpeidai 2-chome, Ami-machi <u>Inashiki-gun</u> , Ibaraki 300-0312 Japan <u>JPX</u>
国籍 日本国	Citizenship Japanese <input checked="" type="checkbox"/>
郵便の宛先 住所に同じ	Post Office Address same as above

5-00

第五の共同発明者の氏名 長田 貞男	Full name of fifth joint inventor, if any <u>Sadao NAGATA</u>
第五の共同発明者の署名 Sadao Nagata June 8, 2001	Fifth joint inventor's signature Date
住所 101-8441 日本国東京都千代田区神田錦町1-25 日清製粉株式会社内	Residence c/o Nisshin Flour Milling Co., Ltd. 25, Kandanishiki-cho, 1-chome, Chiyoda-ku, <u>Tokyo</u> 101-8441 Japan <u>JPX</u>
国籍	Citizenship
郵便の宛先	Post Office Address

第六の共同発明者の氏名	Full name of sixth joint inventor, if any
第六の共同発明者の署名	Sixth joint inventor's signature
住所	Residence
国籍	Citizenship
郵便の宛先	Post Office Address